AMENDMENTS TO THE CLAIMS

1. (Currently amended) In a dual mode target designation system ~~having~~ in which a narrow laser beam from a laser rangefinder having a laser is projected in a scanning fashion towards a target cloud in an attempt to illuminate a selected target in the cloud and in which an IR detector is co-boresighted with ~~a~~ the laser of the laser range finder, a method for actively adjusting the laser boresight to align with the IR detector boresight such that at least one of the boresights ~~to be~~ is aligned with the other of the boresights, comprising the step of:

providing a closed loop system for correcting the boresight of the laser based on a comparison of the reported position of the selected target ~~positions~~ from the IR detector and ~~laser range finder reported position~~ the reported position of a return from the selected target as a result of illumination by the scanning laser.

2. (Currently amended) The method of Claim 2, wherein the correcting step includes adjusting the boresight of the laser ~~is adjusted~~ by repositioning a laser transmit mirror.

3. (Currently amended) The method of Claim ~~3~~ 1, wherein the laser is ~~made to execute a search pattern to scan~~ scanned around a target identified by the IR detector.

4. (Currently amended) The method of Claim 3, wherein ~~the target designation system~~ the step of providing the closed loop system includes the step of detecting ~~a~~ the target cloud with the IR detector and after a first laser return from the selected target, comparing the position of the selected target as detected by the first laser beam return with the position of the selected target as

detected by the IR detector to develop an error and refining the position of the ~~targets within the target cloud through the use of the laser range finder,~~ laser beam based on the error such that the closed loop correction ~~reducing~~ reduces scan time ~~when identifying the position of subsequent targets~~ in subsequent laser illuminations of the target cloud to determine the position of a second selected target in the target ~~field~~ cloud.

5. (Currently amended) The method of Claim 2, wherein the ~~closed loop system~~ refining step includes the step of using a mapping system for adjusting the position of the laser transmit mirror, and wherein the mapping system is updated with the results of the comparison of reported target position from the IR detector with reported target position from returns from the laser range finder.

6. (Currently amended) The method of Claim ~~5~~ 1, wherein the step of providing a closed loop system for correcting the boresight of the laser includes the steps of:

determining a number of targets in the field of view of the IR detector;

selecting a first one of the number of targets in the field of view of the IR detector;

aiming the laser in the direction of the selected target;

causing the aimed laser to execute a search pattern using a transmit mirror so as to scan the area about the IR detector reported position of the first one of the number of targets;

detecting the position of the first one of the number of targets from the return of a laser pulse from the first one of the number of targets;

deriving an error signal representing the offset of the IR detector reported position and the laser range finder reported position;

repositioning the transmit mirror based on the detected offset;

selecting a second target in the field of view of the IR detector; and,

aiming the laser to the second target using the transmit mirror positioned in accordance with the detected offset.

7. (Original) The method of Claim 6, wherein the repositioning step includes a map for setting the position of the transmit mirror, and wherein the repositioning step includes the step of storing the detected offset as part of the map.

8. (Currently amended) A method for minimizing scanning time in a dual mode target designator using an IR detector co-boresighted with a laser range finder that emits a laser beam so as to quickly identify the position of a target in a multiple target cloud, comprising the steps of:

deriving an error signal corresponding to boresight misalignment based on reported target position of a first target derived from the IR detector and returns from the first target illuminated by the laser beam from the laser range finder; and,

for the next target selected repositioning the laser boresight so that it is more perfectly co-boresighted with the IR detector boresight, whereby scanning time for the next target is reduced due to the repositioning.

9. (Original) The method of Claim 8, wherein the laser boresight direction is controlled by a laser transmit mirror.

10. (Currently amended) The method of Claim 9, wherein the repositioning step includes the step of altering the position of the transmit mirror ~~has its position~~ as determined by a map and wherein the map is updated with information from the error signal so as to more accurately control the laser beam position on a subsequent scan of the transmit mirror, ~~and~~ thus ~~the alignment of~~ to align the laser boresight with the IR detector boresight.

11. (Currently amended) A system for correcting the boresight of a laser range finder having a laser to match the boresight of an IR detector comprising:

a laser transmit mirror defining the boresight of the laser;

a closed loop controller coupled to said transmit mirror for adjusting the position thereof responsive to a comparison of reported IR detector position of a target with the position of the target reported by said laser range finder ~~position of said target~~.

12. (Currently amended) The system of Claim 11, wherein said controller includes a mapping system for the control of said transmit mirror, said comparison resulting in an error signal coupled to said mapping system for ~~instantiating~~ storing the offset established by said error signal.

13. (Original) The system of Claim 12, wherein said mapping system includes a lookup table.

14. (Currently amended) A system for rapidly identifying the position of a target in a multi-target target cloud, comprising:

an IR detector for detecting the position of targets in said cloud;

a co-boresighted laser range finder for refining the position of a selected target in said target cloud once the position of said selected target has been ascertained by said IR detector;

a comparator for comparing reported position of said selected target from said IR detector with ~~that of~~ reported returns from said selected target due to illumination by said laser range finder, and for outputting an error signal corresponding to the offset in position between said reported positions;

a laser beam boresight controller coupled to said error signal for adjusting the boresight of said ~~ladar or~~ laser range finder to more closely correspond to the boresight of said IR detector, said boresight controller including a scanning unit for causing the laser beam of said laser range finder to repetitively scan the region of the IR detector reported position of said selected target until a return from said selected target has been detected; and,

a target selector for selecting a second target, whereby the previous adjustment of the ~~ladar or~~ laser range finder boresight reduces the scan time associated with the scan of said laser range finder in achieving a laser return from said second target.

15. (Original) The system of Claim 14, wherein said boresight controller includes a laser transmit mirror.

16. (Original) The system of Claim 15, and further including mapping means for controlling the position of said transmit mirror, and wherein said offset is coupled to said mapping means for altering the information in said mapping means so as to position said transmit mirror taking said offset into account.

17. (Currently amended) In a dual mode target designation system ~~having~~ in which a narrow laser beam from a ladar having a laser is projected in a scanning fashion towards a target cloud in an attempt to illuminate a selected target in the cloud and in which an IR detector is co-boresighted with ~~a~~ the laser of the ladar, a method for actively adjusting the laser boresight to align with the IR detector boresight such that at least one of the boresights ~~to be~~ is aligned with the other of the boresights, comprising the step of:

providing a closed loop system for correcting the boresight of the laser based on a comparison of the reported position of the selected target ~~positions~~ from the IR detector and ~~ladar reported position~~ the reported position of a return from the selected target as a result of illumination by the scanning laser.

18. (Currently amended) The method of Claim 17, wherein the correcting step includes adjusting the boresight of the laser ~~is adjusted~~ by repositioning a laser transmit mirror.

19. (Currently amended) The method of Claim ~~18~~ 17, wherein the laser is ~~made to execute a search pattern to scan~~ scanned around a target identified by the IR detector.

20. (Currently amended) The method of Claim 19, wherein ~~the target designation system~~ the step of providing the closed loop system includes the step of detecting ~~a~~ the target cloud with the IR detector and after a first laser return from the selected target, comparing the position of the selected target as detected by the first laser beam return with the position of the selected target as detected by the IR detector to develop an error and refining the position of the ~~targets within the target cloud through the use of the ladar,~~ laser beam based on the error such that the closed loop correction ~~reducing~~ reduces scan time ~~when identifying the position of subsequent targets~~ in subsequent laser illuminations of the target cloud to determine the position of a second selected target in the target ~~field~~ cloud.

21. (Currently amended) The method of Claim 18, wherein the ~~closed loop system~~ refining step includes the step of using a mapping system for adjusting the position of the laser transmit mirror, and wherein the mapping system is updated with the results of the comparison of reported target position from the IR detector with reported target position from returns from the ladar.

22. (Currently amended) The method of Claim ~~21~~ 17, wherein the step of providing a closed loop system for correcting the boresight of the laser includes the steps of:

determining a number of targets in the field of view of the IR detector;

selecting a first one of the number of targets in the field of view of the IR detector;

aiming the laser in the direction of the selected target;

causing the aimed laser to execute a search pattern using a transmit mirror so as to scan the area about the IR detector reported position of the first one of the number of targets;

detecting the position of the first one of the number of targets from the return of a laser pulse from the first one of the number of targets;

deriving an error signal representing the offset of the IR detector reported position and the ladar reported position;

repositioning the transmit mirror based on the detected offset;

selecting a second target in the field of view of the IR detector; and,

aiming the laser to the second target using the transmit mirror positioned in accordance with the detected offset.

23. (Original) The method of Claim 22, wherein the repositioning step includes a map for setting the position of the transmit mirror, and wherein the repositioning step includes the step of storing the detected offset as part of the map.

24. (Currently amended) A method for minimizing scanning time in a dual mode target designator using an IR detector co-boresighted with a ladar that emits a laser beam so as to quickly identify the position of a target in a multiple target cloud, comprising the steps of:

deriving an error signal corresponding to boresight misalignment based on reported target position of a first target derived from the IR detector and returns from the first target illuminated by the laser beam from the ladar; and,

for the next target selected repositioning the laser boresight so that it is more perfectly co-boresighted with the IR detector boresight, whereby scanning time for the next target is reduced due to the repositioning.

25. (Original) The method of Claim 24, wherein the laser boresight direction is controlled by a laser transmit mirror.

26. (Currently amended) The method of Claim 25, wherein the repositioning step includes the step of altering the position of the transmit mirror ~~has its position~~ as determined by a map and wherein the map is updated with information from the error signal so as to more accurately control the laser beam position on a subsequent scan of the transmit mirror, ~~and~~ thus ~~the alignment of~~ to align the laser boresight with the IR detector boresight.

27. (Currently amended) A system for correcting the boresight of a ladar having a laser to match the boresight of an IR detector comprising:

a laser transmit mirror defining the boresight of the laser;

a closed loop controller coupled to said transmit mirror for adjusting the position thereof responsive to a comparison of reported IR detector position of a target with the position of the target reported by said ladar ~~position of said target~~.

28. (Currently amended) The system of Claim 27, wherein said controller includes a mapping system for the control of said transmit mirror, said comparison resulting in an error signal coupled to said mapping system for ~~instantiating~~ storing the offset established by said error signal.

29. (Original) The system of Claim 28, wherein said mapping system includes a lookup table.

30. (Currently amended) A system for rapidly identifying the position of a target in a multi-target target cloud, comprising:

an IR detector for detecting the position of targets in said cloud;

a co-boresighted ladar for refining the position of a selected target in said target cloud once the position of said selected target has been ascertained by said IR detector;

a comparator for comparing reported position of said selected target from said IR detector with ~~that of~~ reported returns from said selected target due to illumination by said ladar, and for outputting an error signal corresponding to the offset in position between said reported positions;

a laser beam boresight controller coupled to said error signal for adjusting the boresight of said ladar ~~or laser range finder~~ to more closely correspond to the boresight of said IR detector, said boresight controller including a scanning unit for causing the laser beam of said ladar to repetitively scan the region of the IR detector reported position of said selected target until a return from said selected target has been detected; and,

a target selector for selecting a second target, whereby the previous adjustment of the ladar boresight reduces the scan time associated with the scan of said ladar in achieving a laser return from said second target.

31. (Original) The system of Claim 30, wherein said boresight controller includes a laser transmit mirror.

32. (Original) The system of Claim 31, and further including mapping means for controlling the position of said transmit mirror, and wherein said offset is coupled to said mapping means for altering the information in said mapping means so as to position said transmit mirror taking said offset into account.